

## **REMARKS/ARGUMENTS**

### **Objection to Non-Enabling Specification for Claim 3**

In the First Office Action, Examiner is of the opinion support for the Applicant's claimed "user specification" recited in claim 3 cannot be found in the specification and hence fails to provide proper antecedent basis for the claimed subject matter.

### **Response to Objection to Non-Enabling Specification for Claim 3**

Applicant submits that claim 3 has been amended to remove the feature of obtaining "user specification".

Therefore in accordance with the above response, reconsideration and withdrawal of the objections to claim 3 is respectfully requested.

In addition, Applicant submits that claims 4, 15, 16, 29 and 30 have been amended as well to remove the feature of obtaining "user's specification".

### **Rejections of Claims 1, 13 and 25**

In the First Office Action, Examiner is of the opinion that many aspects of claims 1, 13 and 25 are disclosed by the prior art He et al (Machine Learning Methods for Chinese Web Page Categorization) (D1) in view of U.S. Patent No. 5,297,039 to Kanaegami et al (D2). Hence, Examiner is of the opinion that claims 1, 13 and 25 are obvious.

### **Response to Rejections of Claims 1, 13 and 25**

Applicant respectfully submits that claims 1, 13 and 25 are allowable over D1 in view of D2. Specifically, claims 1, 13 and 25 recite apparatus and methods for discovering knowledge from text documents comprising the aspects of extracting semi-structured meta-data from text documents, identifying key identities and key relations from the semi-structured meta-data, deriving from a domain knowledge base a plurality of attributes, formulating a plurality of patterns, analyzing the plurality of patterns using an associative discoverer and interpreting the output of the associative discoverer for discovering knowledge.

D1 discloses a method for text categorization for Chinese information by application of three known statistical machine-learning methods to Chinese web page categorization. The three statistical machine-learning methods are namely  $k$  Nearest Neighbor system ( $k$ NN), Support

Vector Machines (SVM) and Adaptive Resonance Associative Map (ARAM). D1 investigates the capabilities of these methods in learning categorization knowledge from real-life web documents. In addition, D1 further investigates whether the incorporation of domain knowledge derived from the category description can enhance ARAM's predictive performance.

D2 discloses a text information extraction system that extracts analysis networks from texts and stores them in a database. The analysis networks consist of lines each including elements and relations extracted from the texts. Further, the analysis networks are complemented via synonym/near synonym/thesaurus process and via complementary template and the lines thereof are weighted via concept template. A text similarity matching device judges similarity of input and database analysis networks on the basis of agreements of words, word pairs, and lines. A text search system stores texts and complementary term lists prepared therefrom in respective databases. Queries are inputted in the form of analysis networks from which sets of keywords and relations are extracted. After searching the texts and complementary term lists stored in databases with respect to the keywords extracted from each input query, agreements of the sets of keywords and relations are determined.

Applicant respectfully reiterates that the inventions of claims 1, 13 and 25 comprises steps for transforming each of the key entities into a plurality of attributes through the use of an external domain knowledge base. Although Examiner is of the opinion that D1 discloses this feature (Page 96, Left Column, Paragraph 1), Applicant submits that D1 does not disclose the use of any such knowledge base as D1 merely discloses that ARAM formulates recognition categories of input patterns. In addition, D2 also does not disclose the use of the knowledge base for such purposes as well.

Hence, Applicant respectfully submits that in accordance to the above response explaining that the inventions of claims 1, 13 and 25 are not disclosed independently by D1 and D2, a person having ordinary skills in the art when combining D1 and D2 would not be able to arrive at the method and system for discovering knowledge from text documents of claims 1, 13 and 25. Therefore, claims 1, 13 and 25 are submitted to be allowable.

Furthermore, D1 relates to a method for categorization of Chinese text while D2 relates to a text search system. Unlike English and other Indo-European languages, Chinese text does

not have a natural delimiter between words. This results in the problem of word segmentation when performing Chinese documents processing. D1 addresses this problem by using statistical learning machines together with use of rules insertion. D2 does not specifically mention that the disclosed text search system is able to perform Chinese documents processing. Hence, Applicant respectfully submits that since D1 and D2 each addresses different problem domains, it would not be obvious for a person having ordinary skills in the art to combine D1 and D2 to arrive at the method and system for discovering knowledge from text documents of claims 1, 13 and 25. Therefore, claims 1, 13 and 25 are submitted to be allowable.

Therefore in accordance with the above response, reconsideration and withdrawal of the rejections of claim 1, 13 and 25 are respectfully requested.

**Rejections of Claims 2, 14 and 28**

Examiner is of the opinion that D1 discloses claims 2, 14 and 28. In particular, Examiner is of the opinion that D1 teaches the step of extracting text context from documents, which contain at least one type of text, image, audio and video information. Hence, Examiner is of the opinion that claims 2, 14 and 28 are obvious.

**Response to Rejections of Claims 2, 14 and 28**

Claims 2, 14 and 28 describe steps and means for extracting text content from documents containing at least one type of text, image, audio and video information.

Applicant submits that D1 does not disclose the extraction of text content from documents, which contain at least one of text, image, audio and video information. In particular, D1 merely recites that in order to categorize text, a suitable representation of the documents from which the text is extracted from is required. D1 does not disclose any information about the nature of the documents.

Further, Applicant respectfully submits that in accordance to the above response explaining that the method and system for discovering knowledge from text documents of claims 1, 13 and 25 are not disclosed independently by D1 and D2, the method and system of claims 1, 13 and 25 would not have been available to a person skilled in the art at the time of invention to improve upon to arrive at each of claims 2, 14 and 28. Therefore, claims 2, 14 and 28 are submitted to be allowable.

Therefore in accordance with the above response, reconsideration and withdrawal of the rejections of claims 2, 14 and 28 are respectfully requested.

**Rejections of Claims 3, 15 and 29**

Examiner is of the opinion that D2 discloses claims 3, 15 and 29. Specifically, Examiner is of the opinion that the “identifying” as claimed by Applicant is anticipated by D2. In addition, Examiner is further of the opinion that “selecting” as claimed by Applicant is anticipated by keyword extracting as taught in D2. Hence, Examiner is of the opinion that claims 3, 15 and 29 are obvious.

**Response to Rejections of Claims 3, 15 and 29**

Claims 3, 15 and 29 recite steps and means for selecting the plurality of key entities according to at least one of frequency of appearance of the plurality of key entities in the semi-structure meta-data.

Applicant submits that each of claims 3, 15 and 29 needs to be read in totality when interpreting the claimed invention and not be based on a single keyword. Applicant submits D2 does not specifically disclose selecting the plurality of key entities based on the frequency of appearance in the semi-structure meta-data as described in each of claims 3, 15 and 29 of the present application. D2 merely teaches means for searching among complementary term lists generated using search means or list generating means.

In addition, Applicant also respectfully submits that in accordance to the above response explaining that the method and system for discovering knowledge from text documents of claims 1, 13 and 25 are not disclosed independently by D1 and D2, the method and system of claims 1, 13 and 25 would not have been available to a person skilled in the art at the time of invention to improve upon to arrive at each of claims 3, 15 and 29. Therefore, claims 3, 15 and 29 are submitted to be allowable.

Therefore in accordance with the above response, reconsideration and withdrawal of the rejections of claims 3, 15 and 29 are respectfully requested.

**Rejections of Claims 4, 16 and 30**

Examiner is of the opinion that D2 discloses claims 4, 16 and 30. Specifically, Examiner is of the opinion that the “identifying” as claimed by Applicant is anticipated by D2. In addition,

Examiner is further of the opinion that “selecting” as claimed by Applicant is anticipated by keyword extracting as taught in D2. Hence, Examiner is of the opinion that claims 4, 16 and 30 are obvious.

**Response to Rejections of Claims 4, 16 and 30**

Claims 4, 16 and 30 recite steps and means for selecting the plurality of key relations according to at least one of frequency of appearance of the plurality of key relations in the semi-structure meta-data.

Applicant submits that each of claims 4, 16 and 30 needs to be read in totality when interpreting the claimed invention and not be based on a single keyword. Applicant submits D2 does not specifically disclose selecting the plurality of key entities based on the frequency of appearance in the semi-structure meta-data as described in each of claims 4, 16 and 30 of the present application. D2 merely teaches means for searching among complementary term lists generated using search means or list generating means.

Further, Applicant respectfully submits that in accordance to the above response explaining that the method and system for discovering knowledge from text documents of claims 1, 13 and 25 are not disclosed independently by D1 and D2, the method and system of claims 1, 13 and 25 would not have been available to a person skilled in the art at the time of invention to improve upon to arrive at each of claims 4, 16 and 30. Therefore, claims 4, 16 and 30 are submitted to be allowable.

Therefore in accordance with the above response, reconsideration and withdrawal of the rejections of claims 4, 16 and 30 are respectfully requested.

**Rejections of Claims 5, 17 and 31**

Examiner is of the opinion that D1 discloses claims 5, 17 and 31. Specifically, Examiner is of the opinion that a lexicon disclosed in D1 anticipates the Applicant’s claimed taxonomy. Hence, Examiner is of the opinion that claims 5, 17 and 31 are obvious.

**Response to Rejections of Claims 5, 17 and 31**

Claims 5, 17 and 31 recite steps and means for deriving from a domain knowledge base relating to at least one of taxonomy, a concept hierarchy network, ontology, a thesaurus, a relational database, and an object-oriented database.

Applicant submits that when interpreting each of claims 5, 17 and 31, they should be read in totality and not be determined solely based on a single keyword. Although Applicant agrees that lexicon is similar to the claimed taxonomy, claims 5, 17 and 31 describe derivation from a domain knowledge base of various source types, of which only one of the various source types is related to taxonomy.

Additionally, Applicant respectfully submits that in accordance to the above response explaining that the method and system for discovering knowledge from text documents of claims 1, 13 and 25 are not disclosed independently by D1 and D2, the method and system of claims 1, 13 and 25 would not have been available to a person skilled in the art at the time of invention to improve upon to arrive at each of claims 5, 17 and 31. Therefore, claims 5, 17 and 31 are submitted to be allowable.

Therefore in accordance with the above response, reconsideration and withdrawal of the rejections of claims 5, 17 and 31 are respectfully requested.

#### **Rejections of Claims 6, 18 and 32**

Examiner is of the opinion that D2 discloses claims 6, 18 and 32. In particular, Examiner is of the opinion that parts of speech identified in the analysis networks during syntactical analysis, are attributes and/or lower level entities that characterize the analysis networks as taught in D2. Hence, Examiner is of the opinion that claims 6, 18 and 32 are allowable.

#### **Response to Rejections of Claims 6, 18 and 32**

Claims 6, 18 and 32 recite steps and means for deriving a set of attributes or lower level entities characterizing the plurality of entities relating to the plurality of key entities.

Applicant submits that D2 makes no particular mention that the selection of verbs positioned after respective nouns is specifically for characterizing the plurality of entities relating to the plurality of key entities as described in each of claims 6, 16 and 32 of the present application.

Further, Applicant also respectfully submits that in accordance to the above response explaining that the method and system for discovering knowledge from text documents of claims 1, 13 and 25 are not disclosed independently by D1 and D2, the method and system of claims 1, 13 and 25 would not have been available to a person skilled in the art at the time of invention to

improve upon to arrive at each of claims 6, 18 and 32. Therefore, claims 6, 18 and 32 are submitted to be allowable.

Therefore in accordance with the above response, reconsideration and withdrawal of the rejections of claims 6, 18 and 32 are respectfully requested.

**Rejections of Claims 8, 20 and 34**

Examiner is of the opinion that D1 discloses claims 8, 20 and 34. Hence, Examiner is of the opinion that claims 8, 20 and 34 are obvious.

**Response to Rejections of Claims 8, 20 and 34**

Claims 8, 20 and 34 recite steps and means of using the associative discoverer comprising, analyzing the plurality of patterns using at least one of a neural network, a statistical system and a symbolic machine learning system.

Applicant submits that claims 8, 20 and 34 disclose the use of a combination of a neural network, a statistical system and a symbolic machine learning system for analyzing the plurality of patterns whereas D1 merely recites the fact that Adaptive Resonance Associative Map (ARAM) is a class of neural networks. Hence, Applicant submits that D1 does not teach the use of a combination of a neural network, a statistical system and a symbolic machine learning system for analyzing the plurality of patterns

Applicant respectfully submits that in accordance to the above response explaining that the method and system for discovering knowledge from text documents of claims 1, 13 and 25 are not disclosed independently by D1 and D2, the method and system of claims 1, 13 and 25 would not have been available to a person skilled in the art at the time of invention to improve upon to arrive at each of claims 8, 20 and 34. Therefore, claims 8, 20 and 34 are submitted to be allowable.

Therefore in accordance with the above response, reconsideration and withdrawal of the rejections of claims 8, 20 and 34 are respectfully requested.

**Rejections of Claims 9, 21 and 35**

Examiner is of the opinion that D1 discloses claims 9, 21 and 35. In particular, Examiner is of the opinion that D1 teaches the use of Adaptive resonance Associative Map (ARAM) for analyzing patterns. Hence, Examiner is of the opinion that claims 9, 21 and 35 are obvious.

**Response to Rejections of Claims 9, 21 and 35**

Claims 9, 21 and 35 recite steps and means for analyzing the plurality of patterns using an Adaptive resonance Associative Map.

Applicant submits that claims 9, 21 and 35 has to be read in totality together with the preceding claims they are dependent on, which are claims 8, 20 and 34.

Applicant respectfully submits that in accordance to the above response explaining that the method and system for discovering knowledge from text documents of claims 1, 13 and 25 are not disclosed independently by D1 and D2, the method and system of claims 1, 13 and 25 would not have been available to a person skilled in the art at the time of invention to improve upon to arrive at each of claims 9, 21 and 35. Therefore, claims 9, 21 and 35 are submitted to be allowable.

Therefore in accordance with the above response, reconsideration and withdrawal of the objections to inventive step of claims 9, 21 and 35 are respectfully requested.

**Rejections of Claims 10 and 22**

Examiner is of the opinion that D1 discloses claims 10 and 22. Specifically, Examiner is of the opinion that discovering of the relations is inherent in the process of category recognition amongst patterns and is taught in D1. Hence, Examiner is of the opinion that claims 10 and 22 are obvious.

**Response to Rejections of Claims 10 and 22**

Claims 10 and 22 recite a step and a means for interpreting the output of the associative discoverer for discovering knowledge comprising, discovering the relations between the plurality of attributes and the plurality of key entities.

Applicant submits that Examiner is applying hindsight in stating that discovering of the relations is inherent in the process of category recognition amongst patterns since there are no clear indications that this can easily be derived from the teachings of D1.

Additionally, Applicant respectfully submits that in accordance to the above response explaining that the method and system for discovering knowledge from text documents of claims 1 and 13 are not disclosed independently by D1 and D2, the method and system of claims 1 and 13 would not have been available to a person skilled in the art at the time of invention to improve



upon to arrive at each of claims 10 and 22. Therefore, claims 10 and 22 are submitted to be allowable.

Therefore in accordance with the above response, reconsideration and withdrawal of the rejections of claims 10 and 22 are respectfully requested.

#### **Rejection of Claim 26**

Examiner is of the opinion that D1 discloses claim 26. Specifically, Examiner is of the opinion that the “words” taught in D1 are equivalent to the key entities in Applicant’s claimed invention. In addition, Examiner is of the opinion that by disclosing “words” being in “classes”, D1 anticipates the “relations among the entities” of Applicant’s claimed invention. Hence, Examiner is of the opinion that claim 26 is obvious.

#### **Response to Rejection of Claim 26**

Claim 26 recites the semi-structured meta-data comprising definition of entities and relations among the entities.

Applicant submits that D1 does not specifically recite the definition of entities and relations among the entities being in the semi-structured meta-data other than merely disclosing that the model contains 64,000 words in 1,006 classes. Applicant submits that Examiner is applying hindsight in objecting to claim 26.

Applicant respectfully submits that in accordance to the above response explaining that the system for discovering knowledge from text documents of claim 25 is not disclosed independently by D1 and D2, the system of claim 25 would not have been available to a person skilled in the art at the time of invention to improve upon to arrive at claim 26. Therefore, claim 26 is submitted to be allowable.

Therefore in accordance with the above response, reconsideration and withdrawal of the rejections of claim 26 is respectfully requested.

#### **Rejection of Claim 27**

Examiner is of the opinion that D1 discloses claim 27. Specifically, Examiner is of the opinion that when D1 teaches that the lexicon “contains” words, it is inherent that the words are stored in the lexicon and that the lexicon is stored in some form that can be accessed by segmentation model. Hence, Examiner is of the opinion that claim 27 is obvious.

### **Response to Rejection of Claim 27**

Claim 27 recites the semi-structured meta-data being stored in a permanent or temporary storage.

Applicant agrees with Examiner that lexicon disclosed by D1 has to be stored in some form but D1 makes no specific mention that the lexicon is stored either in a permanent or temporary storage. Hence, Applicant respectfully submits that Examiner is objecting to claim 27 by making inferences based on the teachings in D1.

Applicant also respectfully submits that in accordance to the above response explaining that the system for discovering knowledge from text documents of claim 25 is not disclosed independently by D1 and D2, the system of claim 25 would not have been available to a person skilled in the art at the time of invention to improve upon to arrive at claim 27. Therefore, claim 27 is submitted to be allowable.

Therefore in accordance with the above response, reconsideration and withdrawal of the rejection of claim 27 is respectfully requested.

### **Rejection of Claim 36**

Examiner is of the opinion that D1 discloses claim 36. More specifically, Examiner is of the opinion that the “words” taught in D1 are equivalent to the key entities in Applicant’s claimed invention. In addition, Examiner is of the opinion that by disclosing “words” being in “classes”, D1 anticipates the “relations among the entities” of Applicant’s claimed invention. Furthermore, Examiner is of the opinion that in broadly teaching relation between entities, D1 anticipates the specific claiming of “hidden relations”. Hence, Examiner is of the opinion that claim 36 is obvious.

### **Response to Rejection of Claim 36**

Claim 36 recites the knowledge comprising hidden key relations between the attributes of the entities and the key entities.

Applicant submits that D1 makes no specific mention of hidden key relations between the attributes of the entities and the key entities. Hence, Applicant submits that Examiner is applying hindsight in objecting to claim 36.

Applicant respectfully submits that in accordance to the above response explaining that the system for discovering knowledge from text documents of claim 25 is not disclosed independently by D1 and D2, the system of claim 25 would not have been available to a person skilled in the art at the time of invention to improve upon to arrive at claim 36. Therefore, claim 36 is submitted to be allowable.

Therefore in accordance with the above response, reconsideration and withdrawal of the rejection of claim 36 is respectfully requested.

**Rejections of Claims 7, 19 and 33**

Examiner is of the opinion that D1 in combination with D2 discloses claims 7, 19 and 33 but does not teach the use of “concatenated vector representation of the plurality of attributes”. However, Examiner is of the opinion that Tan et al (Learning User Profiles for Personalized Information Dissemination) (D3) anticipates Applicant’s claimed “concatenated vector representation”. Therefore it would be obvious to combine D1, D2 and D3 to arrive at claims 7, 19 and 33. Hence, Examiner is of the opinion that claims 7, 19 and 33 are obvious.

**Response to Rejections of Claims 7, 19 and 33**

Claims 7, 19 and 33 describe steps and means for formulating concatenated vector representations of the plurality of attributes and the plurality of key entities relating to the corresponding plurality of key relations.

Applicant respectfully submits that in accordance to the above response explaining that the method and system for discovering knowledge from text documents of claims 1, 13 and 25 are not disclosed independently by D1 and D2, hence the combination of D1, D2 together with D3 would not then enable a person skilled in the art to make use of the undisclosed method and system of claims 1, 13 and 25 at the time of invention to improve upon to arrive at each of claims 7, 19 and 33. Therefore, claims 7, 19 and 33 are submitted to be allowable.

Therefore in accordance with the above response, reconsideration and withdrawal of the rejections of claims 7, 19 and 33 are respectfully requested.

**Rejections of Claims 11, 12, 23, 24, 37 and 38**

Examiner is of the opinion that D1 in combination with D2 and D3 discloses claims 11, 12, 23, 24, 37 and 38. Specifically, Examiner is of the opinion that D3 anticipates the “user

interface for displaying” and hence the combination of D1 with D2 and D3 enables claims 11, 23 and 37 to be derived. Yet specifically, Examiner is of the opinion that D3 anticipates applicant’s claimed “user interface for obtaining user instruction”. Therefore the combination of D1 with D2 and D3 would enable a person skilled in the art to arrive at claims 12, 24 and 38. Hence, Examiner is of the opinion that claims 11, 12, 23, 24, 37 and 38 are obvious.

**Response to Rejections of Claims 11, 23 and 37**

Claims 11, 23 and 37 describe steps and means in which a user interface is used for displaying the semi-structured meta-data, the plurality of key entities, the plurality of key relations, the plurality of attributes and the knowledge discovered.

Applicant respectfully submits that in accordance to the above response explaining that the method and system for discovering knowledge from text documents of claims 1, 13 and 25 are not disclosed independently by D1 and D2, hence the combination of D1, D2 together with D3 would not then enable a person skilled in the art to make use of the undisclosed method and system of claims 1, 13 and 25 at the time of invention to improve upon to arrive at each of claims 11, 23 and 37. Therefore, claims 11, 23 and 37 are submitted to be allowed.

Therefore in accordance with the above response, reconsideration and withdrawal of the rejections of claims 11, 23 and 37 are respectfully requested.

**Response to Rejections of Claims 12, 24 and 38**

Claims 12, 24 and 38 describe steps and means in which a user interface is used for obtaining user instruction for the plurality of key entities and the plurality of key relations.

Applicant respectfully submits that in accordance to the above response explaining that the method and system for discovering knowledge from text documents of claims 1, 13 and 25 are not disclosed independently by D1 and D2, hence the combination of D1, D2 together with D3 would not then enable a person skilled in the art to make use of the undisclosed method and system of claims 1, 13 and 25 at the time of invention to improve upon to arrive at each of claims 12, 24 and 38. Therefore, claims 12, 24 and 38 are submitted to be allowed.

Therefore in accordance with the above response, reconsideration and withdrawal of the objections to inventive step of claims 12, 24 and 38 are respectfully requested.

**Appl. No. 10/532,163**  
**Amdt. dated November 12, 2007**  
**Reply to Office Action of August 10, 2007**

**Conclusion**

Applicants respectfully request reconsideration and that a timely Notice of Allowance be issued in this case. In the event that an extension of time is necessary to allow for consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Conley Rose P.C.'s Deposit Account No. 03-2769 for such fees.

Respectfully submitted,

/Jonathan M. Harris/

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